



Australian Institute of
Landscape Architects

Ms Lynley Ducker, Committee Secretary; and
Mr Bill Pender, Inquiry Secretary
Standing Committee on Infrastructure, Transport and Cities
PO Box 6021
Parliament House
Canberra ACT 2600

Via email: reps@aph.gov.au

Dear Ms Ducker and Mr Pender

Inquiry into the Australian Government's Role in the Development of Cities

The Australian Institute of Landscape Architects (AILA) welcomes the inquiry into the Australian Government's role in the development of cities.

We fully support and are encouraged by the steps taken by the Standing Committee on Infrastructure, Transport and Cities for the consultation process currently underway to inform a national policy that will produce better outcomes for cities and all Australians.

AILA is the growing national advocacy body representing over 3,000 active and engaged landscape architects, promoting the importance of the profession today and for the future. Committed to designing and creating a better Australia, landscape architects shape the world around us. Landscape Architects conceive, reimagine and transform the outside world from streetscapes to parks and playgrounds, transport solutions to tourism strategies, new suburbs and even cities.

Landscape architects shape project outcomes in a variety of ways. We bring a critical eye to the potential opportunities and constraints of a place, site, or landscape. The vegetation, soils, watercourses often navigated by infrastructure projects are but some of the technical issues we bring expertise to. We create conditions for nature to function and thrive, ensuring that infrastructure puts back as much as it takes from Australia's ancient landscape. We bring together other disciplines, in an integrated way to generate better outcomes. We are active on infrastructure development teams of all types, often leading, connecting, facilitating and navigating to help achieve shared outcomes. Landscape Architects lead design for the environment and people of all ages and cultures.

Landscape architects represent a profession increasingly dominating the debates to lead policy making to deliver exemplary outcomes for our cities, towns, regions and their



inhabitants. The work of Australian landscape architects is increasingly being recognised worldwide for our unique skills in creating liveable cities, healthy active spaces and sustainable design outcomes.

As active contributors to the Federal Governments Cities Reference Group through former CEO, Shahana McKenzie, AILA is supportive of the initiatives and steps taken to date by the Government to prioritise policy and projects relating to the development of cities.

AILA's recent advocacy work and conversations with government at all levels have focused on creating the [Living Cities Alliance](#), demonstrating to government and the public what a Future Street could look like, and exploring [living and green infrastructure for smarter and more sustainable cities](#).

In addition to the forthcoming policy and project recommendations, AILA is broadly supportive of the submissions already provided to the Standing Committee, in particular from our affiliate partners, the Australian Sustainable Built Environment Council (ASBEC) and the Planning Institute of Australia (PIA). The following comments respond to the terms of reference for the Inquiry.

Sustainability Transitions in Existing Cities

More sustainable urban form that enhances urban liveability and quality of life and reduces energy, water and resource consumption.

There are number of key issues that have a significant impact on urban liveability and quality of life which warrant consideration by the federal government as it determines its role in developing cities.

Focus Area 1. Cooling Cities

The State of Australian Cities 2013 reports "People living in cities, particularly those in Australia's inland cities, can be more susceptible than non-urban dwellers to the effects of heatwaves as a result of the urban heat island (UHI) effect. This is caused by the prevalence in cities of heat-absorbing materials such as dark coloured pavements and roofs, concrete, urban canyons trapping hot air, and a lack of shade and green space in dense urban environments."¹

Increases in urban temperatures can increase air pollution, greenhouse gas emissions and reduce human comfort in cities, making it harder for people to cool down.

¹ (REF: Infrastructure.gov.au, (2015) State of Australian Cities 2013 [online] Available from: http://www.infrastructure.gov.au/infrastructure/pab/soac/files/2013_00_INFRA1782_MCU_SOAC_CHAPTER_4_WEB_FA.pdf [Accessed 19 March 2015])



Over half of the surfaces within our cities are heat absorbing materials, such as darker coloured roofs, car parks, roadways and footpaths. The urban heat island effect occurs because of the capacity (thermal mass) of these darker surfaces to absorb the sun's energy, converting up to 80 per cent of sunlight into heat that is stored and then released, raising local temperatures.

As development occurs, these darker, absorbent surfaces and materials are increasing, while the overall extent of vegetation, shade and open spaces is decreasing within our cities. Cooler cities provide the following benefits:

- Better air quality – which, in the US, has been shown to deliver an annual economic benefit of nearly US\$1 billion²;
- More resistant to heat- and pollution-related illness and death;
- Reduced peak energy demand and CO² emissions (For every 0.6°C increase in temperature, peak utility loads in medium and large US cities increase by 1.5 – 2.0 per cent)³; and
- Healthier, more comfortable and enjoyable urban spaces

Landscape architects have a major role to play in supporting the Australian Government in the design of cooler cities and the mitigation of rising temperatures at city-wide, neighbourhood and local site scales.

The planning, design and construction of our urban environs, including the application of green roofs and walls, street trees and tree planting, greener open-space design, rain gardens and reflective roofs and pavements, can all contribute to improving the comfort, quality and health of the city and its residents.

Every 1°C temperature reduction that can be achieved through the better design of cities can equate to five per cent energy saving through reduced cooling loads.⁴ Reduced cooling loads will have significant social, economic and environmental impact on the long term sustainability of Australian cities. Alternatively, without changing the way we manage the growth of our cities, a Flinders University-led study has found that a 1°C temperature increase boosts cooling loads by 1.5million kWh per year, generating 1000 tonnes in carbon dioxide emissions.⁵

² Globalcities.org ,(2015). A Practical Guide to Cool Roofs and Cool Pavements. [online] Available at: http://www.coolrooftoolkit.org/wp-content/pdfs/CoolRoofToolkit_ExecSummary.pdf [Accessed 19 March 2015]

³ ibid

⁴ Lehmann, S. (2014). Green Spaces Can Combat Urban Heat Stress - The Adelaide Review. [online] The Adelaide Review. Available at: <http://adelaiderreview.com.au/form/green-spaces-can-combat-urban-heat-stress/> [Accessed 9 Jul. 2015]

⁵ Blogs.flinders.edu.au, (2015). Flinders News > Adelaide Urban Heat Island project. [online] Available at: <http://blogs.flinders.edu.au/flinders-news/tag/adelaide-urban-heat-island-project/> [Accessed 9 Jul. 2015]



Recommendation 1. Recognise and Reduce the Urban Heat Island Effect

- AILA advocates for the recognition of the urban heat island effect and for greater efforts to limit the impact of warming on the long-term sustainability of urban areas across Australia.
- AILA encourages greater awareness of the impacts of densification and urbanisation, and the opportunities that exist to integrate effective cooling measures into the planning, design, redevelopment and management of urban areas.
- AILA recognises climate responsive design and adaptation initiatives should be a shared responsibility between all tiers of government, allied design professionals, developers and the wider community.
- AILA advocates for greater protection of existing trees within urban areas through increased value assessment of their worth to deter removal and drive responsive design outcomes.
- AILA recommends commitment from all tiers of government to annually increase net tree canopy cover across urban areas, including streetscapes, parks and public spaces. Studies have indicated that shade trees can reduce surface temperature by up to 19°C and lower atmosphere temperature by 5-7°C.⁶
- AILA recommends the federal government lead greater incentivisation or regulation for the inclusion of green roofs and green walls in new urban developments and maximise opportunities to retrofit these features on existing sites (refer [AILA's Green Walls and Roofs Position Statement](#)).
- AILA recommends the Federal Government lead greater incentivisation or regulation for specification of reflective roofs and footpaths / pavements surfaces, as well as specification of materials with lower embodied energy. Lighter coloured surfaces have an increased ability to emit absorbed heat. Studies indicate that the use of cool roofs and pavements can reduce local temperatures by 2-3°C, as well as lower the running cost of buildings.⁷

⁶ VALUE Value-landscapes.eu, (2015). Study finds tree shade to be most effective at cooling our cities - VALUE - Valuing Attractive Landscapes in the Urban Economy. [online] Available at: <http://www.value-landscapes.eu/news/12/Study+finds+tree+shade+to+be+most+effective+at+cooling+our+cities.html> [Accessed 19 Mar. 2015].

⁷ Globalcities.org, (2015). Cooler Cities: Global Cool Cities Alliance. [online] Available at: www.globalcoolcities.org/cool-science/cooler-cities/ [Accessed 19 March 2015]



- Greater awareness of the value of maximising the greening of new and existing urban spaces. Studies have indicated that grass surfaces can reduce surface temperature by 24°C,⁸ and planting vegetation for shade can reduce a building's cooling energy consumption by up to 25 per cent annually.⁹
- Master planning of urban sites should give greater consideration to solar access and daily/seasonal sun/shade patterns, prevailing winds, over shadowing created by tall buildings, and identify ways to utilise natural systems to reduce the long-term requirements for mechanical heating and cooling systems.
- AILA recommends the federal government establish a national *Cooling Cities* criterion to assess/rate the impact of new development or redevelopment will have on local conditions, with expectation that site design aspires to zero net addition to local temperatures.

Strategies for adaptation or mitigation of urban heat within existing cities, suburbs or local sites should be recognised and targeted by federal government. AILA recognises the importance of design and mitigation, as well as the role governments and individual efforts can make, to collectively tackle rising temperatures and maximise the benefits of cooling across urban areas.

Recommendation 2. Develop a National Green Infrastructure Strategy

- AILA recommends the development of a *National Green Infrastructure Strategy* by the Australian Government. This Strategy would recognise the fragile intersection of the built and human landscape with the natural landscape in infrastructure development and would seek to ensure change is managed in a planned, integrated and considered way by using the principles of Green Infrastructure as a key approach.

Recommendation 3. Establish a National Living Cities Fund

- AILA recommends that the Australian Government establish a *National Living Cities Fund* to support the implementation of green infrastructure projects across

⁸ Value-landscapes.eu, (2015). Study finds tree shade to be most effective at cooling our cities - VALUE - Valuing Attractive Landscapes in the Urban Economy. [online] Available at: <http://www.value-landscapes.eu/news/12/Study+finds+tree+shade+to+be+most+effective+at+cooling+our+cities.html> [Accessed 19 Mar. 2015]

⁹ Epa.gov, (2003) Cooling Summertime Temperatures: Strategies to Reduce Urban Heat Islands. [online] Available at: <http://www.epa.gov/heatislands/resources/pdf/HIRIbrochure.pdf> [Accessed 19 Mar. 2015]



Australia. This would require a percentage of all Australian Government expenditure on 'grey infrastructure' projects (e.g. roads) to be placed in an investment fund for allocation to state and local government green infrastructure projects. This fund could be operated in the same way as the Clean Energy Finance Corporation, which s private sector funding to enhance public benefit outcomes through government investment. Such a Fund would enable the achievement of more sustainable, healthy and measurable outcomes for all infrastructure projects that are funded by the Australian Government.

Focus Area 2. Healthy Communities

While there is an enormous body of anecdotal evidence for the healing powers of nature, research is putting evidentiary weight behind the contention¹⁰. The growing body of research shows a connection between Australia's health and wellbeing and the design and structure of our built environment.¹¹

Governments at all levels, including policy makers and designers including Landscape Architects, must now account for this evidence in their work. **Research has found that access to nature, whether it is existing natural areas, urban parks or even green views, positively impacts psychological and physical health and social functioning.**

Increasing access to views and environments brings health benefits such as:

- better cognitive functioning;
- greater self-discipline and impulse control;
- improved mental health; and
- greater resilience in response to stressful life events.¹²

Recommendation 4. Value existing open space and commit to providing more in Australian cities

- AILA recommends the creation of an Australian Government policy on the value of open spaces that quantifies and qualifies the development of better, higher quality and greener open spaces in cities that focuses on the health and wellbeing of our communities.

Landscape architects are uniquely positioned to provide essential input into this process and assist the Australian Government to create healthier communities through its role in developing our regions and cities.

¹⁰ Frances E. (Ming) Kuo; Parks and Other Green Environments: Essential Components of a Healthy Human Habitat 2010 p.3

¹¹ <http://www.healthyplaces.org.au/site/why.php> Accessed: 14 Dec 2014

¹² Frances E. (Ming) Kuo; Parks and Other Green Environments: Essential Components of a Healthy Human Habitat 2010 p.4



Recommendation 5. Fund Local Government Green Infrastructure Packages

- AILA recommends the development of an Australian Government funded *Local Government Green Infrastructure Package* to elevate the priority of green infrastructure strategies. A specific condition of the package would be the active removal of red tape and barriers (e.g. overly complex policy and codes, for example) and the introduction of positive policies and frameworks to accelerate the deployment of green infrastructure investments. The package would provide funding to Local Government to accelerate projects that embed green infrastructure strategies, such as: implementing green roofs and walls and green streets, re-establishing networks of public open space, creating connected tree canopies in our streets, and increasing the overall urban tree canopy coverage. The package would also be used to encourage creative green infrastructure funding and implementation strategies, such as density bonuses for greater open space, and stormwater retention credit trading systems. The package would assist the removal of existing barriers to green infrastructure investment and accelerated implementation of new projects and policies at the most appropriate level, as local governments are the most appropriate design and delivery mechanism for streetscape and greening projects in our regions and cities.

Recommendation 6. Develop a National Green Streets Guide and Establish a ‘Grey to Green’ Pilot Program

- AILA recommends that the Australian Government lead the redefining of the role and design of road corridors that express the full potential of environmental, social and economic benefits from green infrastructure strategies, as well as the active retrofit of grey infrastructure to green infrastructure. This would involve a proof of concept pilot study across urban and suburban areas to test the design and implementation of green streets designs and the subsequent production of a *National Green Streets* guide for application by government and private sector on road projects.

Landscape architects play a key role in the early stages of project planning. Whether it is a specific site or planning on a broad city scale, landscape architects provide an integrated approach to creating healthy communities. The holistic approach required to design and develop successful healthy communities considering such elements as orientation, views, amenity, wayfinding, sunlight for health and growing conditions for trees and greening can best be provided by landscape architects.



Focus Area 3. Public Transport

Public transport systems provide mass transit of people to shared destination points, whether workers, school children, visitors, sports fans or shoppers. The growing population in cities means that public transport is increasingly the best option for getting around efficiently. The 2015 Australian Infrastructure Audit revealed that traffic congestion is estimated to cost Australia's economy over \$53 billion per annum by 2031, and consequently, in most of Australia's capital cities the demand for public transport has grown strongly. Where these services are provided sufficiently they are well used. For example, patronage on Melbourne's rail network increased 70 per cent over the last ten years.

The way we move about in our cities in particular has a major impact on our environment, our health and workforce productivity. For example, vehicular transport is responsible for most urban air pollution and about 16.5% of our greenhouse gas emissions. Traffic congestion decreases productivity, increases stress levels, and is estimated to cost the Australian economy currently up to \$20 billion per annum in lost productivity.

People who live in our cities are often fortunate enough to have the benefit of public transport. Ferries, trains, trams, light rail and buses benefit the individual and the community. The design of our transport systems is often funded by governments of all levels, the private sector, or a contribution of both. A well-designed, integrated and customer-focused transport system is therefore a critical factor to the economic, social and environmental success of our cities.

The benefits of public transport systems include:

- reduced transport congestion, leading to greater productivity and happiness;
- lower fossil fuel use, leading to fewer greenhouse gas emissions and reduced air pollution;
- improved health and wellbeing, reducing public health costs from a more active population; and
- improved choice of movement, leading to reduced reliance of a car ownership, with improved health and wellbeing benefits to the population.

Investment in the good design of public transport, brings benefits fewer private vehicles on the roads leading to increased safety, efficiency and vibrancy of streets and places, precincts and businesses. Landscape architects can make important contributions to the policy and planning, and subsequent design and documentation of public transport systems.

Public transport systems that are infrequent, inconvenient or poorly connected cannot achieve desired benefits to the economy and the people. For example, bus, tram or light rail stops need to link walking and cycling routes to business or community centres and key destinations. Rapid bus or train (heavy rail) systems need to connect with other transport



systems, as well as provide easy and clear interchanges at stations such as 'park and ride' or 'bike and ride'.

Recommendation 7. Invest in public transport

- AILA recommends effective and well-considered investment in public transport by governments, and the private sector, for all people.
- AILA recommends the Australian Government lead the development of a framework for the better design of public transport systems as part of the city and urban structure, ensuring a fully integrated approach to networks of travel modes to efficiently meet the needs of the community.
- AILA recommends that landscape architects are part of teams that undertake transport system feasibility, planning and design, design development and documentation to resolve issues such as:
 - integration of the different transport modes (e.g. walking, cycling) to link with public transport;
 - provision of safety, functionality and comfort to encourage use of the services; and
 - enrichment of places (place making) with lighting, greening, wayfinding systems and signage, integrated public art and street furniture.

AILA believes that landscape architects are critical players in the development of policy and planning to ensure that the outcomes:

- meet the social, environmental and economic needs of the present without compromising future generations' ability to meet their own needs;
- protect and enhance the environment, locally and globally in the short and long term
- provide and promote lower carbon transport options;
- enable safety and efficiency of the whole journey;
- facilitate improved health and well-being through active travel choices; and
- incorporate a place-based approach to the design process.



Regulation and barriers that the Commonwealth could influence, and opportunities to cut red tape.

Recommendation 8. Enforce Minimum SITES Rating for Federally-funded Projects

- AILA recommends the building a culture of a comprehensive landscape assessment and strategy development in all Australian Government funded infrastructure projects. By applying the SITES rating tool with certification confirms a commitment to best practice sustainable landscape management on major infrastructure projects. By enabling these projects to be independently verified as meeting best practice standards promotes healthy functioning landscapes and maximum public benefit.
- Outcome: All Australian Government funded infrastructure projects pursue a SITES rating for best practice landscape management.

SITES is used by landscape architects, designers, engineers, architects, developers, policy-makers and others to align land development and management with innovative sustainable design.

Land is a crucial component of the built environment and can be planned, designed, developed and maintained to protect and enhance the benefits we derive from healthy functioning landscapes. SITES helps create ecologically resilient communities and benefits the environment, property owners, and local and regional communities and economies.

Administered by Green Business Certification Inc. (GBCI), SITES offers rating system designed to distinguish sustainable landscapes, measure their performance and elevate their value. SITES certification is for development projects located on sites with or without buildings—ranging from national parks to corporate campuses, streetscapes to homes, and more.



Recommendation 9. Recognise Living Infrastructure as an Asset Class (or equivalent).

- AILA recommends that Treasury formally recognises all green infrastructure as an asset class to be valued during business case development for major Australian Government funded projects. This would involve the development of a business case and value proposition for green infrastructure to be articulated and endorsed by Treasury, followed by the development and use of a set of evidence-based green infrastructure criteria used in business case approvals and value capture via Treasury.

More benefits of being a global 'best practice' leader in sustainable urban development

Focus Area 4. Future Street

In October 2017, and in partnership with the Department of Prime Minister and Cabinet, Smart Cities Council Australia and New Zealand (SCCANZ) and the Internet of Things Alliance Australia (IOTAA), AILA developed 'Future Street', a public activation, demonstrating the design concepts and technology for our future public spaces. Transforming a prominent Sydney street and reclaiming it for the people of the city, Future Street sparked ideas about how these spaces could be different and what that means for the community.

Future Street reinvigorated Alfred Street in Circular Quay for a four-day activation, changing the way people used the street and educating them on the technologies of the future. Showcasing the latest developments in technology, the importance of a greener and more inclusive street, Future Street engaged members of the public as well as members of industry.

The adaptation of the concepts presented in the Future Street installation provides a platform for Australian Government to ensure Australia is recognised as a global 'best practice' leader in sustainable urban development.

Future Street was demonstrated in four key areas:

Today Street

This section of the Future Street illustrated the typical approach to the design, delivery and organisation of streets in many cities around Australia and globally.



The prioritisation of cars over people, trees and life. In most CBD's, streets represent 30% of land across a city, with more than 50% of the space given away to move cars and buses. We protect their presence and have actively fostered a car centric culture.

The impact of Streets of Today, with minimal street trees and vegetation, can be 10 degrees hotter than equivalent streets that have greater focus on street trees and landscape. On top of this, air quality in streets full of cars and buses is much worse than in streets and spaces that have prioritised people and bikes over cars.

Streets are our most fundamental shared public spaces, but they are also one of the most contested and overlooked. Today, and for most of the last century, we have taken for granted the idea that our streets are primarily zones for cars, parking, and the transporting of goods.

Green Street

This section of the Future Street illustrated a proposition of what the future of our streets might look like if we removed car access, prioritised people, cycling and public transport, and reintroduced landscape and nature.

As the urban population grows and we head towards a more urbanised and vertical way of living, private green space will become less available and the importance of public open space will increase in its social and community value. This is where green streets can play a key role.

Green Streets can incorporate a wide variety of design elements including street trees, permeable pavements, bioretention, and swales. Although the design and appearance of green streets will vary, the functional goals are the same. For example, a Green Street could include a natural stormwater management device, be used for urban agriculture, provide space for large shady trees or simply have gardens and greenery to be enjoyed.

Green Streets will improve local air quality by providing interception of airborne particulates and shade for cooling. Importantly, Green Streets can act as a key linking component in community efforts to develop local green infrastructure networks and unite our communities with a common project and green connection.

Complete Street

This section of the Future Street illustrated a proposition of what the future of our streets might look like when we balance the importance of people and cars in a street.

A Complete Street is designed to balance the safe, convenient and comfortable travel and access for users of all ages and abilities regardless of their mode of transport. It involves greening and beautifying the footpaths and public places, making meeting places more vibrant and appealing, and improving connections for cycling, walking and access to public transport. A complete street seeks to provide opportunities for all users, be they



pedestrians, cyclists, car drivers, public transport users and operators, or delivery drivers.

Streets are arguably the most important asset of a city, and a Complete Street facilitates opportunities to leverage this asset via new and enhanced retail uses, cultural and leisure experiences for example. It also provides opportunities for life to occur, be that community gatherings, commerce, public art, lighting or landscape.

Complete Streets stimulate economic growth by creating attractive places with greater street activity, increasing the number of potential customers passing shopfronts and the length of time spent in town centres.

Smart Street

This section of the Future Street illustrated a proposition of what the future of our streets might look like as technology and new transport modes enable a reimagining of mobility.

It tests a proposition about how autonomous and connected vehicles and the internet of things will unlock productive spaces in and around our streets, making them safer and more enjoyable.

Smart Streets embed and incorporate technology to become the street, re-imagined. On Smart Streets, technology is embedded through the internet of things (sensors, devices and cameras), facilitated via WIFI, collecting data that tells us more about life on our streets and around our city. Smart Street elements will enable more energy efficient provision of services as well as the ability to monitor and analyse our energy, water and waste production.

Beyond automating individual functions for greater efficiency or revenue, the higher imperative of the Smart Street concept is to make the city a more equal, wholesome and enjoyable living experience for its citizens using technology as the enabler, but putting people in the centre of the street.

Recommendation 10. AILA encourages the federal government as part of its role in the development of cities to:

- embrace our streets as important public spaces that can generate and produce opportunity for our communities, and not just harm and pollute them;
- amend policy and regulatory requirements to facilitate the design and management of streets in accordance with the Future Street approach; and
- invest in the design and building of streets that are greener, more complete and smarter.



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The Future Street is a concept that redefines the idea and purpose of the street, by embracing innovative strategies around landscape, infrastructure and technology to make our cities, suburbs and towns more liveable, productive and sustainable. It tests the possibilities, of what is possible if we dedicate less of our public spaces to cars and return them for people to use. Both for new and different mobility options, but also to live and enjoy our cities and streets.

Growing new and transitioning existing sustainable regional cities and towns

Identifying the infrastructure requirements for reliable and affordable transport, clean energy, water and waste in a new settlement of reasonable size, located away from existing infrastructure.

Growth of the larger cities, especially Melbourne and Sydney, is rapid because of employment opportunities and migration trends however it should not be at the cost of development and improvement of established smaller cities and towns where viable communities already exist. Cities and towns of all sizes and locations have the potential to provide sustainable and liveable environments through sensible planning and design. AILA supports PIA's call for a National Settlement Strategy to better focus policy and investment in cities and towns.

It should be recognised that local government in rural areas often lacks the professional resources of those available in larger cities. Regional local governments need to be supported by State and Federal government with funding, expertise and policies to enable their development as sustainable, liveable communities.

Thank you for the opportunity to submit AILA's view to the inquiry. We welcome the opportunity to discuss the contents of this submission with the inquiry in greater detail.

Sincerely,

Linda Corkery
Chair

Tim Arnold
Chief Executive Officer

21 December 2017